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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,273	12/06/2001	Wu-Sung Kim	CU-3641	3361
26530	7590	05/25/2004	EXAMINER	
LADAS & PARRY 224 SOUTH MICHIGAN AVENUE, SUITE 1200 CHICAGO, IL 60604			MUROMOTO JR, ROBERT H	
			ART UNIT	PAPER NUMBER
			3765	

DATE MAILED: 05/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/683,273	KIM, WU-SUNG	
	<b>Examiner</b>	<b>Art Unit</b>	
	Robert H Muromoto, Jr.	3765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 April 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Middleton in view of Ardizzone and Lever.

Middleton teaches a breathable fabric for use in a wearable article. The fabric comprises thermally efficient layer of neoprene rubber sandwiched between a second layer of a permeable material capable of being worn next to the user's skin such as lightweight four way stretch cotton and a third layer also of a permeable material, such as a lightweight four-way stretch cotton for domestic use or a more durable nylon for industrial use. Any suitable external layer may be used as long as the wicking action of the perforations is not hampered.

The neoprene and inner layers are perforated in generally circular shape with a diameter of about .5mm to about 10mm. It is preferred that this fabric use more smaller perforations rather than fewer larger ones which can be adjusted for a particular end use.

The use of "sandwiched by Middleton implicitly teaches that the neoprene layer, which is perforated with very small pores, is "substantially covered" as "substantially" is broad enough to include items that are "sandwiched" together.

Although Middleton teaches these limitations Middleton does not specifically teach an outer spandex/polyurethane layer, use of micropores or that the neoprene layer be anti-bacterial and include bio-ceramics.

However, Middleton does teach very small perforations with a size of .5mm. Additionally, Middleton teaches that it is preferred to use more smaller perforations rather than fewer large perforations. Also absent any teachings of the unexpected results or criticality of using micropores versus very small pores it would have been obvious to one of ordinary skill in the art at the time of invention to through routine experimentation determine the optimum size of pores for a given application.

Pursuant to the use of bio-ceramics, Ardizzone teaches a therapeutic device that uses bio-ceramic fibers, in the form of a woven mat, to take advantage of their far infrared wave emitting characteristics when heated to or above the body temperature of 98.6 degrees Fahrenheit. Recent developments have shown that human tissue is advantageously susceptible to light in the far infrared range. The waves serve to warm objects thermally when they come into contact with the waves.

Additionally, Lever teaches rubber articles and derivatives thereof such as neoprene that incorporate silver based antimicrobial compounds to provide rubber products with antibacterial, antifungal, antimildew, and odor control properties for the user.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the fabric of Middleton to include an anti-bacterial neoprene and

Art Unit: 3765

bio-ceramics layer to provide the user with the anti-bacterial and therapeutic warming effects of such a neoprene and bio-ceramic layer.

With respect to the spandex layer limitation, the use of stretch material including spandex is recognized as a common covering/outer layer for neoprene material. The use of which provides stretch and comfort for the wearer since it allows the neoprene garment to which it is formed to fit any number of wearers in a form fitting manner. The applicant has recited a "polyurethane" layer in claim 3. Spandex is a general term for an elastomeric polyurethane material.

### ***Response to Arguments***

Applicant's arguments filed 4/30/2004 have been fully considered but they are not persuasive. Applicant argues that there would not have been motivation to combine the bio-ceramic fibers of Ardizzone et al. with the teachings of Middleton and Lever. The examiner does not agree. There are many motivational factors of Ardizzone to be combined with the teachings of Middleton and Lever. The stated objective of Ardizzone is to "provide magnetotherapy and far infra-red wave treatment in an integral and consolidated device that is convenient to apply and use (col. 2., lines 29-33)."

Middleton clearly provides a tight fitting neoprene fabric structure. Lever states that neoprene can be modified to include anti-bacterial properties. Additionally, the fact that the Ardizzone reference uses bio-ceramic fibers, in the form of a woven mat, woven fabrics being widely known and understood to be used in the construction of apparel

Art Unit: 3765

which are clearly used to provide wearable products shows that these references are clearly in the same motivational problem solving areas. As such, the rejection remains and is considered proper.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert H Muromoto, Jr. whose telephone number is 703-306-5503. The examiner can normally be reached on 8-530, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Calvert can be reached on 703-305-1025. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bhm  
May 20, 2004

  
JOHN S. CALVERT  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700